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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/826,954  | 04/15/2004  | Manfred Schneegans   | 2001 P 17353 US     | 2275             |
| 48154   | 7590        | 02/10/2006           | EXAMINER            |                  |
| SLATER & MATSIL LLP<br>17950 PRESTON ROAD<br>SUITE 1000<br>DALLAS, TX 75252 |             |                      | NGUYEN, JIMMY       |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2829                |                  |

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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|                              |                               |                                   |  |
|------------------------------|-------------------------------|-----------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>10/826,954 | Applicant(s)<br>SCHNEEGANS ET AL. |  |
|                              | Examiner<br>Jimmy Nguyen      | Art Unit<br>2829                  |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 November 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2 - 4, 6, 8, 11 - 15, 18 - 26 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2 - 4, 6, 8, 11 - 15, 18 - 26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☒ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### Response to Argument

1. Applicant's arguments filed 11/28/05 have been considered but with the following effect;

The applicant argues that Smith does not teach or suggest the limitations " a substantially linear elongated member and a contact tip attached to the substantially linear elongated member". The examiner respectfully traverse this argument. The elongated member (15) bend away from a substrate to form a " Shepherd's hook" shape only when it comes to contact with device (101), however under the normal condition which is not contact with the device (101), the elongate member (15) is linear elongated member with the fixed end ( anchor portion, 12) fasten to the substrate (14).

Further, the applicant argues that Smith never discusses or suggests that an adhesive layer of titanium can be used in conjunction with a coating layer of titanium nitride. The examiner respectfully traverse this argument. As admitted by the applicant ( page 7 of the remark) in the separate discussion regarding a different spring design points out that titanium may be used as an adherence layer with gold (col 10 lines 17 – 24). However, the applicant overlooks a statement in column 10 line 10 – 12 which is " **the other conductive wettable material can be used**" instead of gold and that could be titanium.

As explained in detail above, the amendments do not render the claims distinct and patentable over prior art; nor do the amendments overcome the rejection. The

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applicant's arguments have considered in full, but they are deemed to be unpersuasive and without merit. Therefore, this final rejection is made.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 2 – 4, 6, 8, 10, 18 – 20 are rejected under 35 U.S.C. 102(E) as being anticipated by Smith et al (US 5,944,537).

**As to claim 6**, Smith et al disclose (fig 6) a probe needle for testing semiconductor chips comprising:

A substantially linear elongated member (15) including a fixed end (12) that is fastened in holding member (14) ; and

a contact tip (30) attached at free end of the substantially linear elongated member (15), wherein at least a portion of the surface of the contact tip (30) is provided with a coating (TiN, column 9 lines 15 - 20) of a chemically inert, electrically conductive material (TiN, column 9 lines 15 - 20) that is hard relative to the material of surfaces of the semiconductor chips (14) to be contacted, the coating comprising titanium nitride; and

an adhesive layer of titanium (column 10 lines 19 – 25) arranged beneath the titanium nitride layer so that the adhesive layer is between the surface of the contact tip (30) and the titanium nitride layer (TiN).

**As to claim 2**, Smith et al disclose (fig 6) a probe needle wherein the contact member (30) comprises a first surface attached to the free end (the other end) of the substantially linear elongated member.

**As to claims 3, 8**, Smith et al disclose (fig 6) a probe needle wherein the entire surface of the contact tip (30) is provided with the coating.

**As to claim 4**, Smith et al disclose (fig 6) a probe needle wherein the entire surface of the probe needle (15) is provided with the coating (TiN).

**As to claim 18**, Smith et al disclose (fig 6) a method of forming a semiconductor device, the method comprising:

Fabricating a semiconductor wafer to include a number of circuits (101, 14) and a number of pads (3)

Contacting a test probe (15) to at least one of the pads (3), the test probe (15) being attached to a probe card (100), the test probe (15) including a substantially linear elongated member with a contact tip (30) fastened to the elongated member extending away from the probe card, the contact tip (30) being coated with a layer of titanium

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(layer 31, or any other conductive material, column 10 line 10 – 12) and a layer of titanium nitride (TiN) overlying the layer of titanium; and

Performing an electrical test by applying a test signal to the semiconductor wafer (14) through the test probe (15).

**As to claims 19, 20, ,** Smith et al disclose (fig 6) the method further comprising after performing an electrical test, packaging the SM and test IC.

**As to claim 21,** Smith et al disclose (fig 6) the holding member comprises a probe card (14 or 100).

**As to claims 22, 23, 25, 26,** Smith et al disclose (fig 16) the contact tip (30) includes a body extending away from the elongate member (15), the body narrowing being widest at the surface and narrowing to a point as it extends away from the elongate body.

**As to claim 24,** Smith et al disclose (fig 6) the elongated member (15) includes a fixed end (12) that is fastened to the probe card (100) and a free end, the contact member (15) being attached to the free end of the probe card (the structure 100 with the substrate (14).

### Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11 – 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al (US 5,944,537).

**As to claims 11 - 15,** Smith et al disclose (fig 6) a method for manufacturing a probe needle for testing semiconductor chips, the method comprising:

Providing a probe needle (15) that includes a contact tip (30);

Coating the probe needle (15) at least in the area of the contact tip (30) with a chemically inert, electrically conductive material (TiN) that is hard relative to the material of the contact surfaces of the semiconductor chips (14) to be contacted, wherein the coating comprise coating with titanium nitrides; and

Coating at least in the area of the contact tip (30) with a titanium layer (column 10 lines 19 – 25) prior to the coating with titanium nitride.

It would have been obvious to one having an ordinary skill in the art at the time of the invention was made to use different method to coat the probe needle for the purpose of providing the durability and reliability of the probe contact needle during the contact process.

### Conclusion

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Nguyen whose telephone number is 571-272-1965. The examiner can normally be reached on M- F from 9 to 5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ramtez Nestor, can be reached on 571-272-2034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jimmy Nguyen  
1/25/2006

  
VINH NGUYEN  
PRIMARY EXAMINER  
A.U. 2829  
02/01/06